NORTH CENTRAL FOREST EXPERIMENT STATION

Research Note NC-275

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# FOREST AREA IN NORTH DAKOTA, 1980[1]

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ABSTRACT.—In 1980 North Dakota's forest resources covered 518,100 acres of land, a slight decline from the 572,400 acres reported in 1954. The area of commercial forest land also dropped from 398,400 acres to 343,200 acres. The aspen forest type makes up 41 percent of the commercial forest area.

KEY WORDS: Commercial forest land, productive-reserved, unproductive, wooded strips, shelterbelts, nonforest with trees, forest type, land use.

One out of every 86 acres in North Dakota is forested—a total of 518,100 acres. Most forested acres occur along the Canadian border, along the valleys of the Red, Missouri, Little Missouri, and Sheyenne Rivers, and around Devils Lake (table 1). An area of 343,200 acres, or 66 percent of the total forest area, is suitable for producing industrial timber and is therefore classified as commercial forest land. The aspen forest type makes up 41 percent (139,500 acres) of the commercial forest area. The second largest forest type, elm-ash, accounts for 33 percent or 113,700 acres. The ponderosa pine forest type has the least area—1 percent or 2,100 acres:

| Forest type | Area |
|---|---|
| | *(acres)* |
| Aspen | 139,500 |
| Elm-ash | 113,700 |
| Oak | 44,200 |
| Cottonwood | 18,700 |
| Plains hardwoods | 15,800 |
| Ponderosa pine | 2,100 |
| Nonstocked | 9,200 |
| Total | 343,200 |

[1]*The sampling error of area for this survey was +3.9 percent for the acres of commercial forest land.*

The Eastern Unit of North Dakota is more heavily forested than the Western Unit (fig. 1). The most heavily forested County, Rolette, has 60,000 acres of commercial forest—10 percent of the land area (table 1).

Forest land declined in North Dakota by 53,900 acres or 9 percent between 1954 and 1980. Commercial forest land decreased 14 percent during the same period.

| Land Use | 1954 | 1980 | Change since 1954 |
|---|---|---|---|
| | *Thousand acres* | | *Percent* |
| Forest | | | |
| Commercial | 398.4 | 343.2 | −14 |
| Noncommercial | | | |
| Unproductive | 170.4 | 148.0 | −13 |
| Reserved | 3.2 | 26.9 | +88 |
| Total forest | 572.0 | 518.1 | −9 |
| Nonforest | 44,264.5 | 43,821.2 | −1 |
| Total land | 44,836.5 | 44,339.3 | −1 |

Published 1954 areas have been adjusted to align the estimates more closely with definitions of land classification and procedures used in the 1980 survey.

Noncommercial forest land totals 174,900 acres. Since 1954, the reserved area has increased 741 percent or 26,900 acres (4,500 acres productive and 22,400 acres unproductive) primarily due to increases in the areas of State and national parks. The remaining 148,000 acres of unproductive forest land, too poor to grow timber products for industrial use, are concentrated in the Badlands area.

Table 1.--Area of land, forest land, and nonforest land with trees by county, North Dakota, 1980

EASTERN UNIT

| County | All[1] land | Forest land[2] | | | | | | | Wooded[7] strips and shelterbelts | Total nonforest with trees[8] |
|---|---|---|---|---|---|---|---|---|---|---|
| | | All forest | Productive reserved[3] | Unproductive[4] | Unproductive-reserved[5] | Commercial[6] | All forest | Commercial forest | | |
| | Thousand acres | | | | | | Percent | | Thousand acres | |
| Barnes | 946.6 | 6.5 | -- | 1.9 | -- | 4.6 | 0.7 | 0.5 | 5.3 | 9.5 |
| Benson | 897.7 | 31.4 | -- | 3.4 | -- | 28.0 | 3.5 | 3.1 | 11.0 | 16.1 |
| Bottineau | 1,073.4 | 44.3 | -- | 2.3 | -- | 42.0 | 4.1 | 3.9 | 9.4 | 15.5 |
| Cass | 1,119.3 | 11.4 | -- | 2.9 | -- | 8.5 | 1.0 | 0.8 | 15.0 | 23.6 |
| Cavalier | 967.5 | 40.2 | -- | 6.3 | -- | 33.9 | 4.2 | 3.5 | 7.3 | 15.1 |
| Dickey | 731.6 | 1.2 | -- | 0.4 | -- | 0.8 | 0.2 | 0.1 | 6.3 | 9.7 |
| Eddy | 406.4 | 3.7 | -- | 0.9 | -- | 2.8 | 0.9 | 0.7 | 5.0 | 9.2 |
| Foster | 413.0 | 0.2 | -- | 0.1 | -- | 0.1 | -- | -- | 2.9 | 4.4 |
| Grand Forks | 920.3 | 11.0 | 0.4 | 2.2 | -- | 8.4 | 1.2 | 0.9 | 5.3 | 9.9 |
| Griggs | 454.3 | 3.4 | -- | 0.8 | -- | 2.6 | 0.8 | 0.6 | 5.7 | 9.2 |
| Kidder | 868.9 | -- | -- | -- | -- | -- | -- | -- | 2.7 | 4.6 |
| LaMoure | 727.0 | 1.3 | -- | 0.4 | -- | 0.9 | 0.2 | 0.1 | 9.2 | 13.7 |
| Logan | 640.3 | 0.2 | -- | 0.1 | -- | 0.1 | -- | -- | 2.6 | 4.3 |
| McHenry | 1,202.8 | 14.3 | -- | 2.9 | -- | 11.4 | 1.2 | 1.0 | 10.7 | 18.3 |
| McIntosh | 634.7 | 0.4 | -- | 0.2 | -- | 0.2 | -- | -- | 3.1 | 6.0 |
| Nelson | 630.9 | 5.2 | -- | 1.3 | -- | 3.9 | 0.8 | 0.6 | 2.7 | 5.1 |
| Pembina | 719.4 | 31.0 | 0.4 | 4.9 | 0.4 | 25.3 | 4.3 | 3.5 | 7.4 | 11.1 |
| Pierce | 664.3 | 2.1 | -- | 0.6 | -- | 1.5 | 0.3 | 0.2 | 6.9 | 11.6 |
| Ramsey | 799.0 | 2.8 | -- | 0.4 | -- | 2.4 | 0.3 | 0.3 | 5.3 | 8.5 |
| Ransom | 551.1 | 15.9 | -- | 4.0 | -- | 11.9 | 2.9 | 2.2 | 5.6 | 7.5 |
| Richland | 927.4 | 9.0 | -- | 1.6 | -- | 7.4 | 1.0 | 0.8 | 7.7 | 13.3 |
| Rolette | 584.0 | 64.1 | 0.7 | 3.4 | -- | 60.0 | 11.0 | 10.3 | 12.9 | 23.4 |
| Sargent | 545.9 | 1.3 | -- | 0.5 | -- | 0.8 | 0.2 | 0.2 | 5.0 | 8.0 |
| Steele | 454.5 | 3.6 | -- | 1.1 | -- | 2.5 | 0.8 | 0.6 | 3.5 | 5.9 |
| Stutsman | 1,449.2 | 2.8 | -- | 0.9 | -- | 1.9 | 0.2 | 0.1 | 7.6 | 12.9 |
| Towner | 667.5 | 0.1 | -- | -- | -- | 0.1 | -- | -- | 0.6 | 1.2 |
| Traill | 551.0 | 8.4 | -- | 2.4 | -- | 6.0 | 1.5 | 1.1 | 11.7 | 18.7 |
| Walsh | 823.0 | 17.6 | -- | 2.8 | -- | 14.8 | 2.1 | 1.89 | 0.8 | 3.8 |
| Wells | 831.3 | 1.4 | -- | 0.5 | -- | 0.9 | 0.2 | 0.1 | 3.6 | 7.0 |
| Total | 22,208.3 | 334.8 | 1.5 | 49.2 | 0.4 | 283.7 | 1.5 | 1.3 | 177.1 | 308.9 |

WESTERN UNIT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Adams | 633.1 | 0.1 | -- | 0.1 | -- | -- | -- | -- | 1.4 | 3.7 |
| Billings | 729.0 | 17.2 | -- | 9.5 | 4.2 | 3.5 | 2.4 | 0.5 | 6.7 | 66.8 |
| Bowman | 748.7 | 0.5 | -- | 0.3 | -- | 0.2 | -- | -- | 2.1 | 5.5 |
| Burke | 716.0 | 0.7 | -- | 0.2 | -- | 0.5 | 0.1 | -- | 3.1 | 8.2 |
| Burleigh | 1,040.2 | 7.8 | -- | 2.7 | -- | 5.1 | 0.8 | 0.5 | 6.1 | 15.2 |
| Divide | 831.8 | 0.3 | -- | 0.1 | -- | 0.2 | -- | -- | 3.2 | 8.5 |
| Dunn | 1,275.0 | 37.9 | 0.4 | 26.0 | -- | 11.5 | 3.0 | 0.9 | 30.4 | 73.5 |
| Emmons | 962.0 | 5.1 | -- | 2.2 | -- | 2.9 | 0.5 | 0.3 | 5.7 | 16.4 |
| Golden Valley | 649.0 | 2.4 | -- | 1.1 | -- | 1.3 | 0.4 | 0.2 | 8.6 | 26.0 |
| Grant | 1,066.1 | 2.9 | -- | 1.9 | -- | 1.0 | 0.3 | 0.1 | 8.7 | 22.0 |
| Hettinger | 726.0 | 0.4 | -- | 0.2 | -- | 0.2 | -- | -- | 2.6 | 6.7 |
| McKenzie | 1,750.4 | 55.1 | 2.6 | 32.1 | 15.7 | 4.7 | 3.2 | 0.3 | 20.9 | 193.7 |
| McLean | 1,321.6 | 7.4 | -- | 2.6 | -- | 4.8 | 0.6 | 0.4 | 10.2 | 22.9 |
| Mercer | 666.6 | 3.0 | -- | 1.4 | -- | 1.6 | 0.5 | 0.2 | 3.9 | 10.7 |
| Morton | 1,228.9 | 6.1 | -- | 3.1 | 0.1 | 2.9 | 0.5 | 0.2 | 7.0 | 18.2 |
| Mountrail | 1,164.2 | 8.7 | -- | 2.9 | -- | 5.8 | 0.8 | 0.5 | 9.5 | 24.9 |
| Oliver | 461.3 | 3.7 | -- | 2.3 | -- | 1.4 | 0.8 | 0.3 | 5.9 | 14.4 |
| Renville | 567.2 | 0.9 | -- | 0.4 | -- | 0.5 | 0.2 | 0.1 | 1.5 | 3.9 |
| Sheridan | 632.7 | 0.4 | -- | 0.2 | -- | 0.2 | -- | -- | 1.4 | 3.7 |
| Sioux | 705.8 | 2.2 | -- | 0.6 | -- | 1.6 | 0.3 | 0.2 | 2.0 | 6.5 |
| Slope | 783.8 | 7.5 | -- | 3.0 | 2.0 | 2.5 | 0.9 | 0.3 | 8.3 | 35.3 |
| Stark | 842.3 | 4.2 | -- | 1.4 | -- | 2.8 | 0.5 | 0.3 | 6.0 | 14.7 |
| Ward | 1,308.2 | 5.4 | -- | 2.0 | -- | 3.4 | 0.4 | 0.3 | 4.0 | 10.9 |
| Williams | 1,321.1 | 3.4 | -- | 2.5 | -- | 0.9 | 0.3 | 0.1 | 12.3 | 45.4 |
| Total | 22,131.0 | 183.3 | 3.0 | 98.8 | 22.0 | 59.5 | 0.8 | 0.3 | 171.5 | 677.7 |
| State Total | 44,339.3 | 518.1 | 4.5 | 148.0 | 22.4 | 343.2 | 1.2 | 0.8 | 348.6 | 986.6 |

1/ 1970 Bureau of the Census estimates.

2/ Land at least 16.7 percent stocked by forest trees of any size, or formerly having such tree cover, excludes land currently developed for nonforest use such as urban or heavily settled residential or resort area, city parks, orchards, improved roads or improved pasture land. The minimum forest area classified was 1 acre. Classified as forest were roadside, streamside, and shelterbelt strips of timber with a crown width of at least 120 feet and unimproved roads and trails, streams, and clearings in forested areas if less than 120 feet wide.

3/ Land sufficiently productive to qualify as commercial forest land but withdrawn from timber utilization through statute or administrative designation, or exclusive use for Christmas tree production as indicated by annual shearing.

4/ Forest land incapable of producing 20 cubic feet per acre of industrial wood under natural conditions, because of adverse site conditions i.e., sterile soils, dry climate, poor drainage, high elevation, steepness, and rockiness.

5/ Forest land incapable of producing 20 cubic feet per acre of wood under natural conditions and withdrawn for utilization through statute administrative designation.

6/ Forest land producing crops of industrial wood and not withdrawn from timber utilization by statute or administrative regulation.

7/ An acre or more of continuous forest land that would otherwise meet the standards for commercial forest land except that it is less than 120 feet wide.

8/ Areas of land with trees but have less than 16.7 percent stocking and/or are less than 120 feet wide area i.e., cropland with scattered trees, improved pasture with scattered trees, wooded strips, windbreaks, and idle farmland with scattered trees.

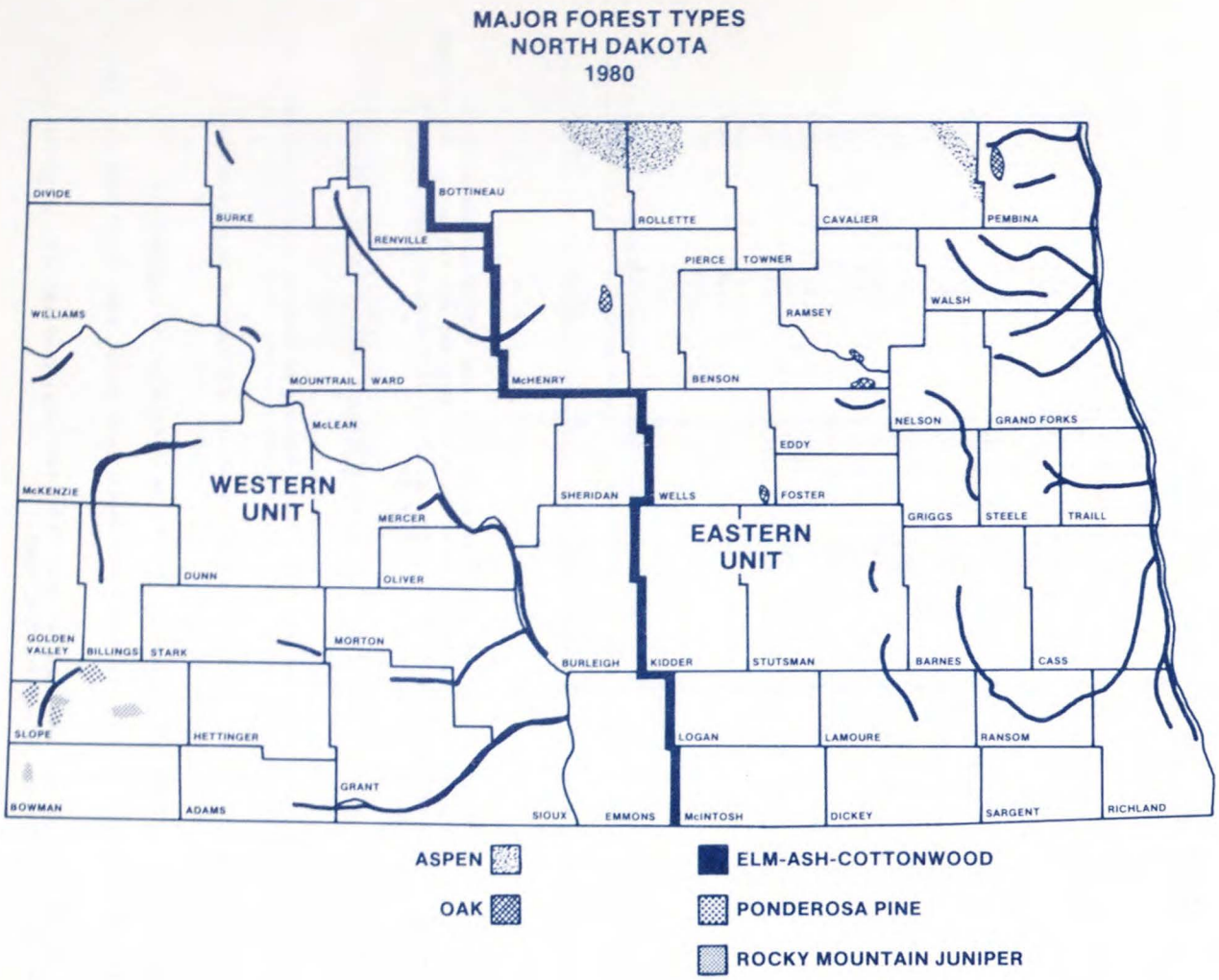


Figure 1.—*Major forest types, North Dakota, 1980.*

An important North Dakota resource not included in the forest land area are the 354,300 acres of natural and planted wooded strips and shelterbelts. This area does not include windbreaks around farm buildings and other structures.

The information in this note comes from the second North Dakota forest inventory made during 1978-1980 by the North Central Forest Experiment Station. Other publications giving further details will be available in the future.

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